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12/20/02

Docket No. 217199US0

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

IN RE APPLICATION OF: Daisuke SHIIBA, et al.

SERIAL NO: 10/014,356 GAU: 1761

FILED: December 14, 2001 EXAMINER:

FOR: ACIDIC OIL-IN-WATER TYPE EMULSION COMPOSITION

INFORMATION DISCLOSURE STATEMENT UNDER 37 CFR 1.97

ASSISTANT COMMISSIONER FOR PATENTS
WASHINGTON, D.C. 20231

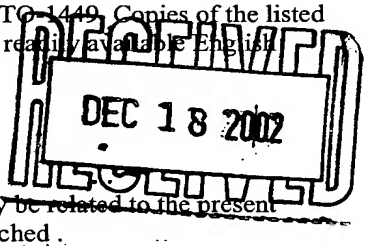
SIR:

Applicant(s) wish to disclose the following information.

REFERENCES

☐ The applicant(s) wish to make of record the references listed on the attached form PTO-1449. Copies of the listed references are attached, where required, as are either statements of relevancy or any readily available English translations of pertinent portions of any non-English language references.

☐ A check is attached in the amount required under 37 CFR §1.17(p).



RELATED CASES

■ Attached is a list of applicant's pending application(s) or issued patent(s) which may be related to the present application. A copy of the claims and drawings of the pending application(s) is attached.

☐ A check is attached in the amount required under 37 CFR §1.17(p).

CERTIFICATION

☐ Each item of information contained in this information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this statement.

☐ No item of information contained in this information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application or, to the knowledge of the undersigned, having made reasonable inquiry, was known to any individual designated in 37 CFR §1.56(c) more than three months prior to the filing of this statement.

DEPOSIT ACCOUNT

■ Please charge any additional fees for the papers being filed herewith and for which no check is enclosed herewith, or credit any overpayment to deposit account number 15-0030. A duplicate copy of this sheet is enclosed.

Respectfully submitted,

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LIST OF RELATED CASES

Docket Number	Serial or Patent No.	Filing or Issue Date	Status or Patentee
228077US0 CIP	10/238,720	09/11/02	PENDING
217199US0*	10/014,356	12/14/01	PENDING

*Present application; listed for information

228077

WHAT IS CLAIMED IS:

1. A method for activating lipid catabolism in the small intestine epithelium, which comprises administering an effective amount of a diacylglycerol.

2. The method according to claim 1, wherein 15 to 90 wt.% of constituent fatty acids of said diacylglycerol comprise ω3 unsaturated fatty acids.

3. The method according to claim 1 or 2, wherein 1,3-diacylglycerols in said diacylglycerol amount to at least 50 wt.% of the whole diacylglycerol.

4. A method for promoting accumulation of fatty acids into the small intestine epithelium, which comprises administering an effective amount of a diacylglycerol.

5. The method according to claim 4, wherein 15 to 90 wt.% of constituent fatty acids of said diacylglycerol comprise ω3 unsaturated fatty acids.

6. The method according to claim 4 or 5, wherein 1,3-diacylglycerols in said diacylglycerol amount to at least 50 wt.% of the whole diacylglycerol.

7. A method for inducing expression of a small intestine lipid metabolic gene, which comprises administering an effective amount of a diacylglycerol.

8. The method according to claim 7, wherein 15 to 90 wt.% of constituent fatty acids of said diacylglycerol comprise ω3 unsaturated fatty acids.

9. The method according to claim 7 or 8, wherein 1,3-diacylglycerols in said diacylglycerol amount to at least 50 wt.% of the whole diacylglycerol.

10. A method for suppressing synthesis of a triacylglycerol in the small intestine epithelium, which comprises administering an effective amount of a diacylglycerol.

11. The method according to claim 10, wherein 15 to 90 wt.% of constituent fatty acids of said diacylglycerol comprise ω3 unsaturated fatty acids.

12. The method according to claim 10 or 11, wherein 1,3-diacylglycerols in said diacylglycerol amount to at least 50 wt.% of the whole diacylglycerol.

13. A method for promoting energy consumption, which comprises administering an effective amount of a diacylglycerol.

14. The method according to claim 10, wherein 15 to 90 wt.% of constituent fatty acids of said diacylglycerol comprise ω3 unsaturated fatty acids.

15. The method according to claim 13 or 14, wherein 1,3-diacylglycerols in said diacylglycerol amount to at least 50 wt.% of the whole diacylglycerol.

16. A method for lowering a serum RLP level, which comprises administering an effective amount of a diacylglycerol.

17. The method according to claim 16, wherein 15 to 90 wt.% of constituent fatty acids of said diacylglycerol comprise ω3 unsaturated fatty acids.

18. The method according to claim 16 or 17, wherein 1,3-diacylglycerols in said diacylglycerol amount to at least 50 wt.% of the whole diacylglycerol.

19. A method for lowering a serum leptin level, which comprises administering an effective amount of a diacylglycerol.

20. The method according to claim 19, wherein 15 to 90 wt.% of constituent fatty acids of said diacylglycerol comprise ω3 unsaturated fatty acids.

21. The method according to claim 19 or 20, wherein 1,3-diacylglycerols in said diacylglycerol amount to at least 50 wt.% of the whole diacylglycerol.

22. A method for treating diabetes, which comprises administering an effective amount of a diacylglycerol to a diabetic patient.

23. The method according to claim 22, wherein 15 to 90 wt.% of constituent fatty acids of said diacylglycerol comprise ω3 unsaturated fatty acids.

24. The method according to claim 22 or 23, wherein 1,3-diacylglycerols in said diacylglycerol amount to at least 50 wt.% of the whole diacylglycerol.

25. A method for improving lipid metabolism in a diabetic, which comprises administering an effective amount of a diacylglycerol to said diabetic patient.

26. The method according to claim 25, wherein 15 to 90 wt.% of constituent fatty acids of said diacylglycerol comprise

ω3 unsaturated fatty acids.

27. The method according to claim 25 or 26, wherein 1,3-diacylglycerols in said diacylglycerol amount to at least 50 wt.% of the whole diacylglycerol.

28. A method for improving insulin resistance in a diabetic, which comprises administering an effective amount of a diacylglycerol to said diabetic patient.

29. The method according to claim 28, wherein 15 to 90 wt.% of constituent fatty acids of said diacylglycerol comprise ω3 unsaturated fatty acids.

30. The method according to claim 28 or 29, wherein 1,3-diacylglycerols in said diacylglycerol amount to at least 50 wt.% of the whole diacylglycerol.

31. The method according to claim 25, wherein said improvement in lipid metabolism in said diabetic is improvements or an improvement in a triacylglycerol level and/or a cholesterol level in a serum lipoprotein fraction obtained from said diabetic patient.

32. A method of dietary therapy for a diabetic patient, which comprises administering an effective amount of a diacylglycerol.

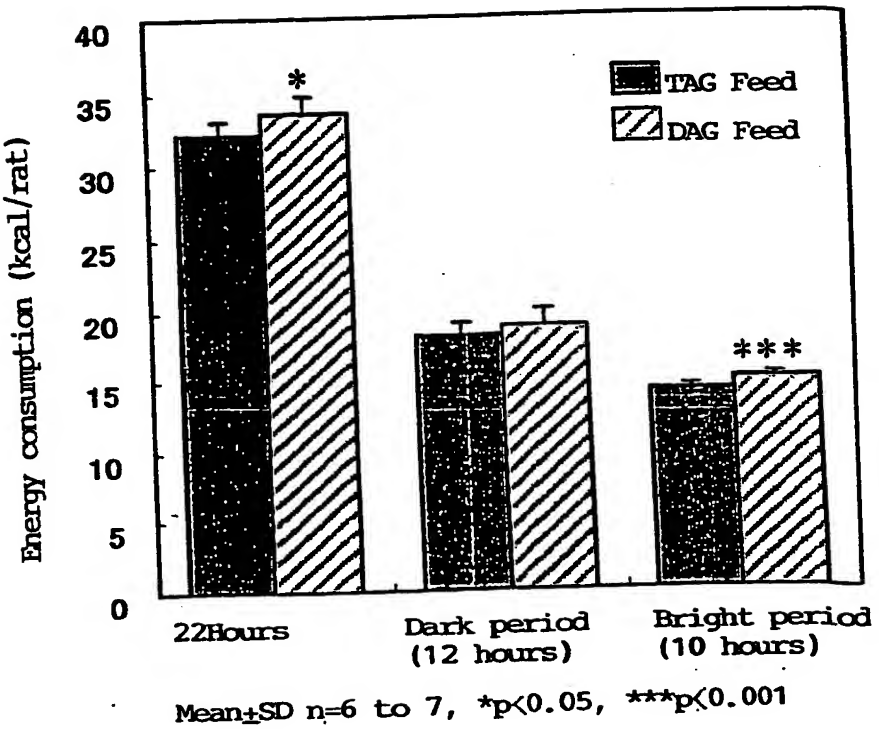
33. A medical food for a diabetic patient, comprising a diacylglycerol.

34. A processed oil or fat food having insulin resistance improving effect, comprising a diacylglycerol.

ABSTRACT OF THE DISCLOSURE

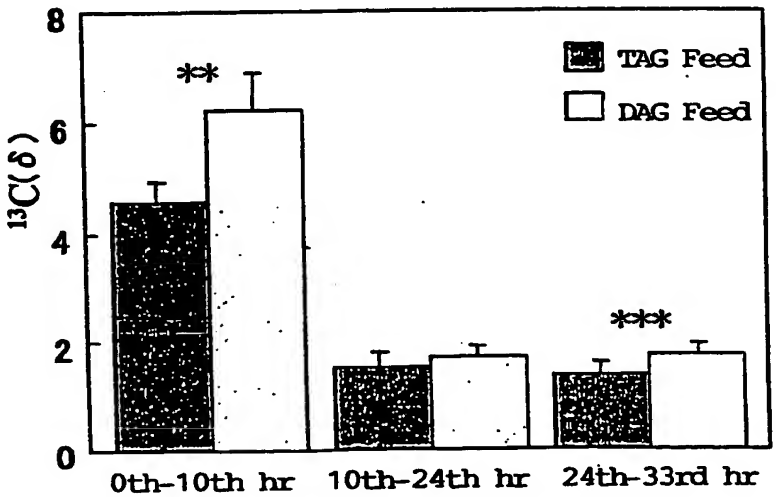
Disclosed are a method for activating lipid metabolism in the small intestine epithelium and also a method for promoting accumulation of fatty acids into the small intestine epithelium, each of which features administering an effective amount of a diacylglycerol. Also disclosed are methods for improving various symptoms in diabetes, which have ingesting a diacylglycerol. Ingestion of the diacylglycerol leads to accumulation of the fatty acids in the small intestine. The fatty acids so accumulated promote induction of β-oxidation, thereby not only activating lipid catabolism but also making it difficult to allow lipids to accumulate as triacylglycerols. This series of actions eventually results in development of lowering action for blood remnant-like lipoprotein level and also lowering action for blood leptin level, and hence, lipid metabolism is improved. Further, energy consumption is enhanced by promoting the induction of β-oxidation and activating lipid catabolism.

FIG 1



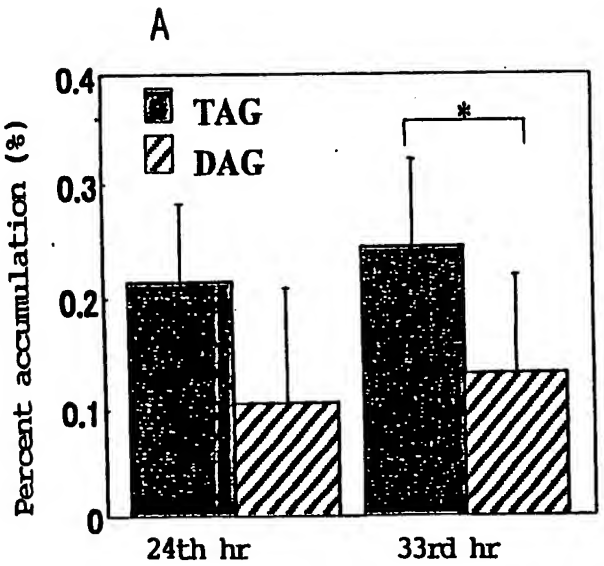
Mean±SD n=6 to 7, *p<0.05, ***p<0.001

FIG 2



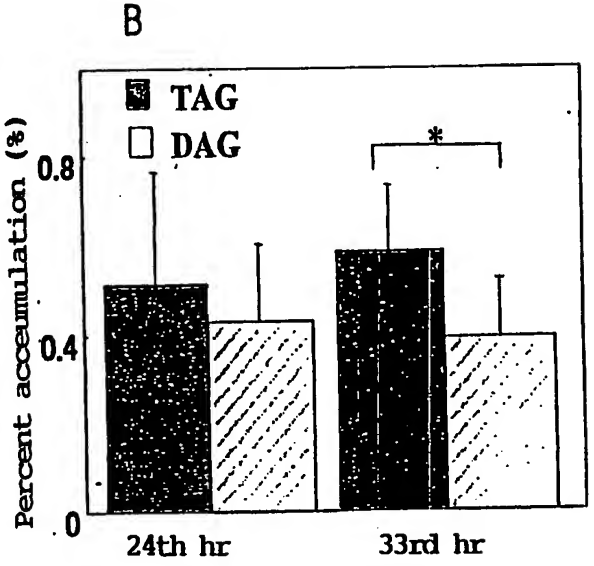
Mean±SD, n=8 pergroup
Significance between 2 groups **: $p<0.01$, ***: $p<0.001$

FIG. 3A



*p< 0.05 (significance between 2 groups)
(n=6 per group)

FIG. 3B



*p< 0.05 (significance between 2 groups)
(n=6 per group)

FIG. 4

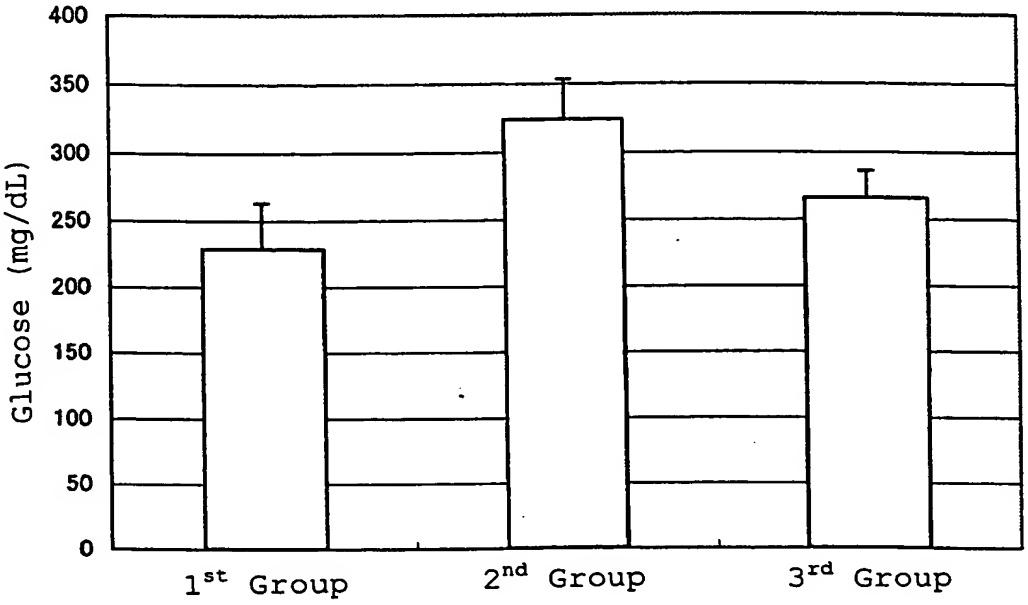


FIG. 5